

REMARKS/ARGUMENTS

Claims 21-24, 26, 28, 29, 31-37, 40 and 42-51 are pending in this application. By this Amendment, claims 21, 26, 29, 31, 37, 40, 42 and 46 are amended, and claims 25, 27, 28, 30, 38, 39 and 41 are cancelled without prejudice or disclaimer. Support for the claims can be found throughout the specification, including the original claims and the drawings. Withdrawal of the rejections in view of the above amendments and the following remarks is respectfully requested.

I. Rejection Under 35 U.S.C. §112, Second Paragraph

The Office Action rejects claims 25, 26 and 46 under 35 U.S.C. §112, second paragraph, as allegedly indefinite. Claim 25 has been cancelled, and thus the rejection, in so far as it applies to claim 25, is moot. It is respectfully submitted that the amendments to claims 26 and 46 are responsive to the Examiner's comments, and that claims 26 and 46 meet the requirements of 35 U.S.C. §112, second paragraph. Accordingly, the rejection should be withdrawn.

II. Rejection Under 35 U.S.C. §102(b)

The Office Action rejects claims 37-41 and 43-46 under 35 U.S.C. §102(b), or in the alternative, under 35 U.S.C. §103(a) over Japanese Patent No. 2000-125600 to Abe et al. (hereinafter "Abe"). Claims 38, 39 and 41 have been cancelled. The rejections, in so far as they apply to claims 37, 40 and 43-46, are respectfully traversed.

Independent claim 37 is directed to a brake resistance assembly, including a case which defines an interior space, and first and second terminals at least partially housed within the interior space defined by the case and coupled to winding coils of the motor by a motor drive

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circuit. The brake resistance assembly also includes first and second resistance coils coupled to the first and second terminals, wherein the first and second resistance coils receive electric energy generated by continued rotation of the motor due to inertia after the motor is turned off and convert the received electric energy into thermal energy. A resistance of the first coil is greater than a resistance of the second coil such that the first coil will be physically damaged and will cause a short circuit so as to prevent damage to the motor drive circuit when electric energy that passes through the second coil and that is applied to the first coil exceeds a predetermined level. Abe neither discloses nor suggests the features of independent claim 37, or the claimed combination of features.

Abe discloses a DC electromagnetic brake used with an electric motor M to engage or release a physical hold on the motor M to allow or prevent the motor M from turning. As set forth in previous replies, Abe's electromagnetic brake and/or its coils 17a and 17b are in no way capable of dissipating electric energy when the motor M is turned off. Applicant maintains the position that Abe's electromagnetic brake is not properly compared, either in structure or in function, to the brake release assembly recited in independent claim 37.

However, even if improperly compared, Abe still neither discloses nor suggests the claimed first and second resistance coils. More specifically, when power is first applied to Abe's motor M, a relatively high initial current is applied to a first coil 17a of an electromagnet 16 to generate an attractive force that releases a mechanical motor brake and allows the motor M to turn. A second, reduced current is then applied to both the first coil 17a and a second coil 17b

of the electromagnet 16 that generates an electromagnetic force is sufficient to maintain the brake in the released position. When current is removed completely, there is no magnetic force generated, and the mechanical motor brake returns to its at rest, initial position engaged/locked on the motor M, thus immediately restricting any additional rotation of the motor M once the brake is applied.

Abe neither discloses nor suggests that the coils 17a and 17b are coupled to any type of winding coils of the motor M, nor that there is any residual energy/inertia that would allow the motor M to continue to turn. Further, the coils 17a and 17b are only capable of moving the brake to a position which would completely stop any rotation of the motor. Thus, in Abe's system, there is no means by which the motor would continue to rotate, and thus necessarily no means by which energy generated by such continued rotation could be converted as claimed.

Additionally, Abe neither discloses nor suggests a relative difference in the resistance of the coils 17a and 17b, nor in particular that the resistance of the first coil 17a is greater than the resistance of the second coil 17b. Further, Abe neither discloses nor suggests that either of the coils 17a and 17b, let alone the first coil 17a, causes a short circuit when a level of electric energy passing therethrough exceeds a predetermined level, as recited in independent claim 37. Rather, Abe's coils 17a and 17b remain connected as disclosed throughout all phases of operation of the motor M.

For at least these reasons, it is respectfully submitted that Abe neither discloses nor suggests at least first and second resistance coils as recited in independent claim 37. Accordingly,

it is respectfully submitted that independent claim 37, as well as claims 40 and 43-46, which depend therefrom, are not anticipated by Abe.

Further, it is respectfully submitted that it would not have been obvious to modify Abe's coils 17a and 17b such that one of the coils 17a, 17b would cause a short circuit as claimed. More specifically, because Abe's electromagnetic brake fundamentally serves a different physical/structural and functional purpose than the claimed brake assembly, it would serve absolutely no purpose to modify Abe's design so that the coils 17a and 17b would be structured and function as the claimed resistance coils. Rather, such a modification would add undue cost and complexity to Abe's design, and would render Abe's design completely non-functional for both its intended purpose and the purpose of such a modification.

Accordingly, it is respectfully submitted that independent claim 37 is allowable over Abe, and thus the rejection of independent claim 37 under 35 U.S.C. §102(b), or, in the alternative, under 35 U.S.C. §103(a), over Abe should be withdrawn. Dependent claims 40 and 43-46 are allowable at least for the reasons set forth above with respect to independent claim 37, from which they depend, as well as for their added features.

III. Rejections Under 35 U.S.C. 35 U.S.C. §103(a)

The Office Action rejects claims 21-30 under 35 U.S.C. §103(a) over U.S. Patent No. 4,556,827 to Erdman et al. (hereinafter "Erdman), in view of U.S. Patent No. 6,748,618 to Darby et al. (hereinafter "Darby") and Abe. Claims 25, 27 and 30 have been cancelled. The rejection, in so far as it applies to claims 21-24, 26, 28 and 29, is respectfully traversed.

Independent claim 21 is directed to a washing machine which includes a brake resistance assembly. Independent claim 21 recites that the brake resistance assembly includes a case which defines an interior space, and first and second terminals at least partially housed within the interior space defined by the case, wherein the first and second terminals are coupled to winding coils of the motor via a motor drive circuit. The brake resistance assembly also includes first and second resistance coils that receive electric energy generated by continued rotation of the motor due to inertia after the motor is turned off and convert the received electric energy into thermal energy. A resistance of the first coil is greater than a resistance of the second coil such that the first coil will be physically damaged and will cause a short circuit so as to prevent damage to the motor drive circuit when electric energy that passes through the second coil and that is applied to the first coil exceeds a predetermined level. Erdman neither discloses nor suggests the features of independent claim 21, or the claimed combination of features.

Erdman discloses a washing machine 8 including a braking relay 130 that controls power to a set of stator windings based on a selected operating mode of the machine 8. Erdman is applied simply to teach a cabinet, drum and motor of a washing machine, and the use of a braking relay 130 with a washing machine 8. However, Erdman makes no specific disclosure as to the structure or composition of the brake relay 130, and thus neither discloses nor suggests a brake resistance assembly as specifically recited in independent claim 21.

Darby is cited as allegedly teaching the use of resistors to dissipate electric energy. However, as acknowledged in the Office Action, Darby neither discloses nor suggests first and second resistance coils as specifically recited in independent claim 21.

Abe is combined with Erdman and Darby, relying on Abe to allegedly teach the features of the claimed brake resistance assembly. However, as set forth above, Abe neither discloses nor suggests each of the features of the brake resistance assembly as recited in independent claim 21, and thus fails to overcome the deficiencies of Erdman.

It is respectfully submitted that even the combination of Erdman, Darby and Abe neither discloses nor suggests each of the features of independent claim 21. Accordingly, it is respectfully submitted that independent claim 21 is allowable over the applied combination, and thus the rejection of independent claim 21 under 35 U.S.C. §103(a) over Erdman, Darby and Abe should be withdrawn. Dependent claims 22-24, 26, 28 and 29 are allowable at least for the reasons set forth above with respect to independent claim 21, from which they depend, as well as for their added features.

The Office Action rejects claim 31 under 35 U.S.C. §103(a) over Erdman, Darby and Abe in view of U.S. Patent No. 3,943,391 to Fehr (hereinafter "Fehr"), rejects claim 32 under 35 U.S.C. §103(a) over Erdman, Darby and Abe in view of U.S. Patent No. 4,085,395 to Billerbeck et al. (hereinafter "Billerbeck"), and rejects claims 33-36 under 35 U.S.C. §103(a) over Erdman, Darby and Abe in view of U.S. Patent No. 5,409,996 to Shinohara et al. (hereinafter "Shinohara"). These rejections are respectfully traversed.

Dependent claims 31-36 are allowable over Erdman, Darby and Abe at least for the reasons set forth above with respect to independent claim 21, from which they depend, as well as for their added features. Further, Fehr is merely cited as allegedly teaching the use of Aluminum and Copper in coil material, Billerbeck is merely cited as allegedly teaching contouring in a casing, and Shinohara is merely cited as allegedly teaching the use of a heat conductive molding material. Thus, Fehr, Billerbeck and Shinohara each fail to overcome the deficiencies of Erdman and Abe. Accordingly, it is respectfully submitted that claims 31-36 are allowable over the respective applied combinations, and thus the rejections should be withdrawn.

The Office Action rejects claim 42 under 35 U.S.C. §103(a) over Abe in view of Fehr. The Office Action also rejects claims 50 and 51 under 35 U.S.C. §103(a) over Abe in view of Shinohara, and rejects claims 47-49 under 35 U.S.C. §103(a) over Abe in view of Shinohara, and further in view of Billerbeck, and. These rejections are respectfully traversed.

Dependent claims 42 and 47-51 are allowable over Abe at least for the reasons set forth above with respect to independent claim 37, from which they depend, as well as for their added features. Further, as set forth above, Fehr, Shinohara and Billerbeck, either alone or in combination, each fails to overcome the deficiencies of Abe. Accordingly, it is respectfully submitted that claims 42 and 47-51 are allowable over the respective applied combinations, and thus the rejections should be withdrawn.

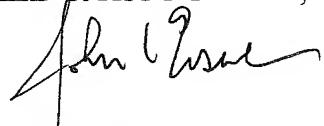
IV. Conclusion

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In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned, **Joanna K. Mason**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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